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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/539,226 | 06/17/2005 | Richard R. Roesler | PO7631US/MD02-174A | 2747 |
| 157 7590 03/03/2010 BAYER MATERIAL SCIENCE LLC 100 BAYER ROAD PITTSBURGH, PA 15205 | | | | |
| EXAMINER PENG, KUO LIANG | | | | |
| ART UNIT 1796 | | PAPER NUMBER | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/539,226

Applicant(s)

ROESLER ET AL.

Examiner

Kuo-Liang Peng

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 10-12 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 10-12 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The Applicants' amendment filed December 1, 2009 is acknowledged. Claims 5-9 and 13-24 are deleted. Claim 1 is amended. Now, Claims 1-4, 10-12 and 25 are pending.
2. The text of those sections of Title 35, U.S. code not included in this action can be found in prior Office Action(s).

Claim Rejections - 35 USC § 103

3. Claims 1-4, 10-12 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roesler652 (US 5 932 652) in view of Schmalstieg (US 5 756 751) and Higuchi (US 5 068 304).

Roesler652 discloses a moisture-curable polyether urethane having terminal urea/reactive silane groups derived from an isocyanate-containing polyether and a compound containing an alkoxy silane group and an aspartate group. The isocyanate-containing polyether can contain both **polyfunctional** and **monofunctional** polyethers. (col. 2, lines 21-38 and col. 8, lines 37-52) The isocyanate-containing polyether can be derived

from a polyether polyol having a molecular weight described in col. 5, lines 11-25. Furthermore, chain extender can be employed. (col. 2, lines 24-38)

As such, the sum of the number average molecular weights of all of the polyether segments per molecule should fall within the claimed range.

Roesler652 is silent on a polyether urethane having a) terminal cyclic urea/reactive silane groups, b) the degree of unsaturation as set forth in the instant claims, c) the relative amounts of the polyfunctional and monofunctional polyethers, and d) the molecular weight of the polyether urethane having terminal cyclic urea/reactive silane groups. For a),

Schmalstieg discloses a moisture-curable polyether urethane containing an alkoxysilane group and a hydantoin group, which can clearly be obtained by cyclizing Roesler652's urea/reactive silane group. The motivation of cyclizing Roesler652's urea/reactive silane group is to afford a moisture-curable polyether urethane that does not suffer from the incompatibility, inhomogeneity and viscosity problems. (col. 1, lines 7-10 and col. 2, lines 22-45) In light of the foregoing benefit, it would have been obvious to one of ordinary skill in the art at the time the invention was made to convert Roesler652's terminal urea/reactive silane group into the terminal group taught in Schmalstieg's disclosure with expected success. Especially,

Schmalstieg is in the same field as that of Roesler652's endeavor. For b), Higuchi teaches the use of a polyether having a degree of unsaturation of not higher than 0.07 meq/g, for example, 0.02 meq/g in a moisture-curable polyether urethane. The motivation is to avoid a deterioration of the physical properties due to an unsaturated monool as a by-product. (col. 1, lines 4-9, col. 2, line 49 to col. 3, line 19 and col. 9, line 64 to col. 10, line 18) In light of the benefit mentioned, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize Higuchi's polyether with low degree of unsaturation for preparing Roesler652's moisture-curable polyether urethane with expected success. Especially, Higuchi is in the same field as that of Roesler652's endeavor. For c), one of ordinary skill in the art would appreciate that the crosslinking density of the cured product (hence, the flexibility, hardness, etc. thereof) derived from polyfunctional polyethers can be adjusted by the incorporation of monofunctional polyethers because the latter will not involve in crosslinking, rather it merely produces dangling chains thereon. In other words, the relative amounts of the polyethers are Result-Effective variables. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the monofunctional

polyethers in whatever amount through routine experimentation in order to afford a cured product with desired crosslinking density. Especially, Applicants do not show the criticality of the foregoing relative amounts. See MPEP 2144.05 (II). For d), a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) As such, Reoesler652's polyether having a molecular weight of 6,000 renders the molecular weight range of the polyether segments in the presently claimed invention obvious.

For Applicants' argument (Remarks, page 5, last paragraph bridging to page 6, 1st paragraph), a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) As such, Reoesler652's polyether having a molecular weight of 6,000 renders the molecular weight range of the polyether segments in the presently claimed invention obvious.

For Applicants' argument (Remarks, page 6, last paragraph), Examiner disagrees. Schmaistieg teaches the advantages of the disclosure thereof over that of US 5 364 955 because US 5 364 955 does not disclose that it is possible to react the N-alkoxysilylalkyl-aspartic acid ester with **all types** of polyisocyanates as taught in Schmaistieg. (col. 2, lines 12-21) Examiner further notes that US 5 364 955 is silent on **terminal hydantoin structures**, too. Applicants correctly pointed out that US 5 364 955's aspartate is the same as Roesler652's (i.e., non-hydantoin structure). As such, Schmaistieg does teach hydrantoin structures in favor of non-hydantoin structures. This is exactly in line with the motivation set forth in the previous Office action, i.e., it would have been obvious to employ Schmaistieg's polyether urethane having terminal hydantoin structures in the disclosure of Roesler652 to afford a moisture-curable polyether urethane that does not suffer from incompatibility, inhomogeneity and viscosity problems encountered with the prior art reaction products of isocyanates with alkoxysilanes containing NH groups **and** can be cured to products having good thermal stability as well as good elongation and adhesive capacity. (col. 2, lines 21-37)

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuo-Liang Peng whose telephone number is (571) 272-1091. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner

by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck, can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

klp
February 17, 2010

/Kuo-Liang Peng/
Primary Examiner, Art Unit 1796